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ABSTRACT

Innovative behavior in the schools is determined by market structure, in which the schools behave as a special type of public utility, and by bureaucratic incentives which govern the schools' motivation and ability to implement change. The market incentives for school districts are systematically different from those of a competitive firm, resulting in a different pattern of innovations. The main bureaucratic influences are bureaucratic safety, influence of external pressures, and peer elite approval. These factors lead to certain recommendations for educational R&D policy. Policies for effective innovation require better understanding of the existing structure of incentives, as well as efforts to modify that structure. Often it will be impossible to know what the objectives of educational policy are, and the practice of trying out new methods may, in the process, disclose what the objectives are. (Author)

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INCENTIVES FOR INNOVATION IN THE PUBLIC SCHOOLS

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I. INTRODUCTION: THE INSTITUTIONAL SETTING

This paper sets out some propositions about the structure and incentive systems of public schools as they relate (1) to the *adoption* of innovations and (2) to their *implementation* in the schools. These propositions may have certain sytematic implications for education R&D policy as well as for such broader questions as how to implement planned change in bureaucracies. The propositions are not based on careful testing of hypotheses, but on a blend of evidence and speculation and are aimed at influencing how we might think about educational R&D policy. Furthermore, implicit herein is the notion that society will be better off if schools could offer a more diverse menu of alternatives in respect to both organization of schools and curricular emphasis. Section II discusses incentives to adopt innovation. Section III discusses the problems of implementation. Section IV suggests some implications for R&D policy. The general thesis of this paper is that the *market structure* of the public school "industry" has a major effect on schools' decisions to adopt innovations; while the *bureaucratic structure and incentives* of schools shape in specific ways the transition from adopting innovations to implementing them. This distinction is somewhat artificial. The ultimate objective should be a testable theory which integrates the incentive effects of both market structure and bureaucratic structure. This paper is therefore a halfway house toward that goal, and not a fully specified model of how school systems behave in response to opportunities for change.

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Public elementary and secondary school systems in the United States are, like many governmental functions, a form of public utility. The public schools are given by state government action a virtual local monopoly of schooling services. The monopoly is not complete because there are four alternatives open to parents who do not choose to send their children to the local public schools: (1) private schools; (2) another public school in the district; (3) another public school in another district; (4) religious schools. The first and third options, private schools and moving to a "better" school district, are open primarily to the wealthy or to those who are both upwardly mobile and also attach primary importance to schools as a determinant of residential location. The second option, another school in the same district, is generally limited by such factors as transportation constraints, school capacity limits, school district regulations limiting transfer, and the relative homogeneousness of neighboring schools. The fourth option, parochial schools, is open primarily to Catholics, and is the most important single alternative to public schools. However, with the progressive reduction in numbers of Catholic parish schools in recent years, most Catholics' alternatives are also being narrowed, a trend which could be reversed only by significant and unlikely changes in church policies toward racial integration or by government subsidy.

For the great majority of clients, the public schools are a de facto local monopoly, which is different from many other local public utilities in several respects. First, unlike most telephone, gas, and electric service, and so on, the quality of school service can vary substantially within a district, which often creates serious perceived issues of equity along income, race, and neighborhood lines.*

Second, in contradistinction to many other local public utilities, the aims of schooling are unclear, or at least there is no consensus about what priority should be given to the various aims.

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*Similar perceptions of unequal service *between* districts have led to recent court decisions which hold that it is a violation of the Fourteenth Amendment to base school spending differences on differences in the local property tax base. Title I "comparability" requirements are designed to offset some of the intradistrict variations.

Third, the technology of schooling is unclear, unlike that of most public utilities. In economists' language, we don't know what the educational production function is, or even if there is one, except perhaps in some non-operational sense.* More generally, we are often unsure whether one method of providing school services is consistently better in terms of output effects, however defined, than any other method.

Fourth, school districts may have very little incentive to be economically "competitive"--to increase their registration at the expense of other districts. The perceived financial gain or loss from interdistrict shifts in public school registration depends on several factors, including the ratio of state and federal aid to local taxes, effects on the local tax base, possibilities of adding or dropping staff or facilities, socio-economic characteristics of shifting students, and so on.

Fifth, although the schools are educational institutions, they apparently provide only a small part of the student's educational resources. Other influences--heredity, family and peer-group environment, communications media, etc.--appear to be the prime determinants of how much people learn, how they learn, and how they respond to contacts with other people and social institutions. This situation makes it very difficult to gauge the effects of schooling on people's lives and learning.

The public schools, of course, do share a number of common characteristics with other non-market oriented public utilities. They are self-perpetuating bureaucracies, thanks to tax-supported status, certification practices for teachers and administrators, and custom of promotion from within. In these respects, the schools resemble many civil service agencies, notably public health, welfare, and criminal justice systems. They also share with these systems a

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*It is non-operational because we now have no satisfactory way of measuring many of the multiple outcomes of schooling, nor of adjusting for differences in teacher and student quality, nor for taking account of the interaction among students, teachers, and curricula, which introduces systematic bias into empirical estimates of educational production functions.

characteristic which profoundly affects their institutional response to innovation: they cannot select their clients and the client must, as a practical matter, accept the service, whether or not he is satisfied with its quality [Carlson, 1965b].

Like the systems cited above, school districts operate under a highly decentralized system of governance, but a highly complex structure of influences. There are nearly 18,000 school districts in the United States, each subject to a range of local community influences, as well as to the influence and legal authority of state and federal governments.

Finally, like certain other self-perpetuating bureaucracies (police, fire, public health services), the schools are a labor-intensive craft industry whose managers often present to the outside world the impression that their craft is highly specialized, that its functions cannot be carried out by replacements whether in the form of uncertified labor or machines.*

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*The recent widespread introduction of teacher aides may represent some potential competition for the teacher guild. This threat is presumably offset in teachers' minds by the value of having assistance in routine and menial chores. It is predictable that teacher aides will themselves "professionalize" before long.

II. CONSEQUENCES FOR DISSEMINATION OF INNOVATIONS IN THE PUBLIC SCHOOLS

How would we expect a self-perpetuating bureaucracy to respond to R&D findings if (1) it is not market-oriented; (2) is widely considered to be socially necessary and therefore deserving of public protection--is in fact the captive servant of a captive clientele; (3) is open to a good deal of public scrutiny on issues having to do with perceived equity, quality, and goals; (4) cannot unambiguously define its aims or clearly identify technologies that are dominant in light of aims that might be specified; (5) its contribution to its clientele's life and learning is uncertain and also modest as compared to other societal influences; (6) its governance is highly decentralized, yet subject to a wide variety of influences, so that each unit perceives itself as facing an unique configuration of clients and masters.

An obvious response is that organizations facing these influences might have fewer incentives to innovate than in situations where market forces or the clarity of institutional goals dictate invention or the adoption of innovations. Yet, as has often been pointed out [Rogers and Scoemaker, 1971; Carlson, 1965b; Miles, 1964; Havelock, 1969], the schools have tried out and adopted a large number of innovations. Certain innovations (the new mathematics, PSSC curriculum, language laboratories) have spread very rapidly; others (junior high school, kindergarten, driver training) more slowly; still others (ungraded classes, open schools, decentralization of decisionmaking from district level to school level) very slowly. Then there are some educational innovations (voucher systems, abolition of teacher tenure, abolition of formal schooling, parent evaluation of school staff as a basis for retention and promotion) which have not yet spread at all. Finally, there have been many innovations that have been adopted but are often not successfully implemented. (A great many applications of new technologies, such as audiovisual equipment and CAI, appear to fall into this category, as well as, in all probability, such new management techniques as PPBS, accountability, administrative decentralization of large districts, etc.) The impedimenta of these innovations--in the form of equipment, or a new set of management structures, or the vestiges of "bold, new" curricula--remain beached by

the wake of ephemeral educational revolutions, while the system continues to operate as before.

The responses of schools to opportunities for innovation appear therefore to be complex; and between the adoption and the implementation, innovations routinely disappear or suffer sea-changes [Gross et al., 1971; Havelock, 1969; Goodlad, in Committee for Economic Development, 1969].

The Schools' Response to Innovation: A Market Analogy

In order to understand under what circumstances schools will or will not be likely to adopt and implement innovations, it is instructive to compare the responses one might expect from the public schools with those one might expect from a competitive private firm (say a private vocational school, such as a computer programming school or a secretarial school).

Educational innovations can affect the schools' operations in diverse ways: increasing the level of resource use only ("more of the same"--e.g., a smaller class size); changing the resource mix (a higher proportion of teacher aides, relative increase in capital equipment); changing instructional processes or methods without significantly changing resource level or mix (new math, new reading curriculum); affecting administrative management, without significant effects on organizational power structures (computerizing data management, new accounting systems); changing either the organizational structure of the schools or their relation to external authority (community control, open schools, voucher systems).

Compared to a competitive firm, we would expect the public schools to:

1. Be *more likely than the competitive firm to adopt cost-raising innovations*, since there is no marketplace to test the value of the innovation (e.g., smaller class size) in relation to its cost. Therefore, any cost-raising innovation that is congenial to the public school authorities and acceptable to local taxpayers or state and federal funding sources will be adopted.

2. Be *less likely than the competitive firm to adopt cost-reducing innovations*, unless the funds so saved become available for other purposes within the district.

3. Be *less likely than the competitive firm to adopt innovations that significantly change the resource mix* (e.g., a higher ratio of teacher aides to teachers, sharply increased use of capital-intensive technologies), because any consequent productivity increases are not necessarily matched by greater "profits" to the district, and because any replacement of labor by capital may threaten the guild structure of the schools.

4. Be *more likely than the competitive firm to adopt new instructional processes or new wrinkles in administrative management* that do not significantly change institutional structure, because such innovations help to satisfy the demands of the public, of state and federal governments, and of teachers and principals themselves for change and progress without exacting heavy costs to the district in the form of organizational stress.

5. Be *less likely than the competitive firm to adopt innovations that change the accustomed authority roles* and established ways of doing business, because changes in these relations represent the heaviest kind of real cost to bureaucracies.

6. Be *equally unwilling as competitive firms to face large-scale encroachments* on protected markets (voucher systems, metropolitan-areawide open enrollment), although for somewhat different reasons.

From this perspective, the public schools can be seen as more likely than private firms to adopt innovations that do not require complex changes in management structure or organizational relations. Such innovations help to satisfy staff and client demands for change, without requiring from the organization the difficult task of self-renewal, which many of the organization's clients, as well as the

organization itself, might resist. Such innovations are also safe, in that it is nearly impossible, given the present state of educational information systems, to document whether a new curriculum, or new physical plant, or an audiovisual system helps or hurts children's learning or attitudes. Therefore, the innovating district, if it uses reasonable sense, is unlikely to get in trouble as a consequence of adopting or abandoning such innovations. Private vocational schools, whose policies are closely tied to student success in job placement, are quite conservative about adopting the latest thing in curriculum, because the risks are excessive in the absence of evidence [Belitsky, 1969].

Although there are probably significant differences in the kinds of innovations that schools and competitive firms are likely to adopt, it is impossible to generalize about whether public schools will adopt more or fewer innovations than competitive firms. It is often pointed out [e.g., Mansfield, 1963] that competitive industries characterized by relatively small firms (e.g., farming,* apparel, hardware) are likely to innovate less than large firms in less competitive industries (e.g., pharmaceuticals, electric equipment, computers), but in this context that is somewhat besides the point, as is the presumably correct argument that no firm, public or private, likes to make uncongenial changes. The point is that differences in market structure tend to lead to different patterns of innovation, through differences in the nature of incentives, whether positive (higher profits, larger Federal grants) or negative (impending bankruptcy, threatened teacher strikes).

Bureaucratic Factors Supporting Innovation

These market considerations are quite general, of course. What are some of the more specific bureaucratic conditioning factors that

*Farming is actually an innovative industry in the United States, but, as in the case of education, the research and development bill is almost entirely paid by the Federal government and oligopolistic farm supply industries. Competitive industries that are less powerful politically than agriculture receive little or no subsidized research and development, while individual firms are too small to finance internally significant levels of R&D.

lead school districts to adopt innovations? For years a dominant view was that the primary determinant of willingness to innovate was the level of per capita school spending [Mort and Cornell, 1941; Carlson, 1965b]. This view was based on extensive studies of school district administration conducted by the Institute of Administrative Research at Columbia Teachers College. These findings, which were widely disseminated, buttressed the school superintendent's natural desire to maximize his per-pupil budget, providing thereby a happy coincidence of organizational self-interest and socially endorsed "progressive" behavior.

More recent research [Carlson, 1965a; Havelock, 1969; Mansfield, 1963; Gross et al., 1971] casts doubt on this contention with respect to schools as well as industrial firms, without denying the usefulness of command over resources. A more complex view of the determinants of innovation in the school emerges. Three factors seem favorable to innovation in the schools:

1. *Bureaucratic Safety*--When the innovation is perceived as favorable with respect to the current status and organization of the bureaucracy (because in a self-perpetuating non-market system, these bureaucratic values become socialized and tend to dominate other criteria; or in other words, the bureaucratic costs are the real costs of the system).

2. *Response to External Pressure*--When external pressures for innovation are perceived as irresistible (because school systems cannot be entirely unresponsive to external pressures and financial constraints).

3. *Approval of Peer Elites*--When key figures in the bureaucracy and their colleagues in other educational bureaucracies can reach consensual agreement about the acceptability of the innovation (because in the absence of clearly defined output criteria, consensus among the elite is often the primary decisionmaking criterion).

These elements are interrelated. For example, external pressures can lower the school district's perception of bureaucratic safety, thereby providing negative incentives to innovate; or if a particular innovation is neutral with respect to bureaucratic safety, then peer approval may act as a positive incentive. They are also complex. For example, approval of peer elite can be used by individual administrators as a justification for pursuing deeply held beliefs, while it can be ignored when it endorses policies that the same administrators are opposed to. Finally, they are relative. In each organization, depending on the circumstances, a constraint may be more or less elastic, and one object of R&D policy may be to make these constraints more elastic, thereby creating greater willingness to change (see pp. 14-15 below).

In addition to these factors which apply particularly to the public school setting, there may be elements present in any organization, whether or not educational, that encourage innovation. These have been discussed widely in the literature on innovation [Bennis et al., 1969; Lippitt et al., 1966; Havelock, 1969; Lippitt, Watson, and Westley, 1958; Marcum, 1968; Rogers, 1971]. These elements, although clearly important in many instances, will not be discussed in detail here. The kinds of factors that students of planned change have identified as generally supporting innovation in organizations include, after the outline of Glaser (1971): organizational attitudes that support change (such as free communication, support from administration and colleagues, high staff morale); clarity of goal structures; organizational structures that favor innovation (sufficient decentralization of authority, existence of a large number of occupational specializations, existence of structures for self-renewal); professionalism of staff; organizational autonomy (not excessively dependent on public opinion or tests of political feasibility to validate planned change); and few strong vested interests in preserving status quo methods of operation.

Some of these elements (e.g., lack of clear goal structures or organizational autonomy) are implicit in the three factors described above (Bureaucratic Safety, Response to External Pressure, Approval of

Peer Elite). Those that are not implicit obviously can affect the propensity to adopt innovations in schools, as elsewhere, and we would expect different school systems to exhibit these qualities in varying degrees.

But if we accept the proposition that the unique elements in the schools' response to opportunities for innovation stem from their special institutional role, market structure, and the systematic set of economic and bureaucratic incentives so created, then there emerges a somewhat different perspective from that usually set forth in the literature on innovation. The three factors described above can, in this perspective, be considered as reflections of institutions, markets, and consequent behavioral incentives facing the public schools.

Therefore, if we can identify the kinds of innovations that are likely to be adopted by school districts that follow such behavioral styles, we may be able to identify ways that R&D products can be oriented in order to gain acceptance. As soon becomes apparent, the three conditions favorable to adoption of innovations in the present setting are themselves rather restrictive. Advocates of substantial innovation in the public schools aren't likely to be very satisfied by a R&D dissemination strategy which takes these conditions as operative constraints. Therefore, it is useful to examine the ways in which R&D dissemination policy could take advantage of the existing structure of market and bureaucratic incentives and also to examine the ways in which these incentives could be modified by conscious R&D policy.

The *bureaucratic safety constraint* means that schools are unlikely to accept radical changes in educational institutions, such as taking instruction out of the classroom, introducing capital-intensive instructional technologies, or new forms of educational market organizations, because such changes might be expected to affect the organization of the system substantially.

The fear of *external social and political pressures on the school system* means that schools will be reluctant to enter into genuine collaboration with other social groups at the policymaking level, such

as community or student participation in control of school district policy, or providing the public with educational information systems that could be used as a step towards "accountability." Extra-system knowledge of school affairs is perceived as leading to greater extra-system pressures for reform, thereby creating unwanted problems for the school system.

The *elite consensus constraint* tends to prevent any but marginal changes from current practice. School districts are of necessity unclear about educational goals, and educational research and development has failed to enlighten them substantially about the relationship between various educational technologies and any specified instructional aim. Therefore, faced by such enormous uncertainties, a rational bureaucratic elite would be unlikely to experiment voluntarily with major changes in structure or method. Social and political consequences would be incalculable (e.g., busing, sex education) while benefits would necessarily be uncertain.

Given these constraints, and the market structure of the public school "industry," schools tend voluntarily to adopt innovations which promote the schools' self-image by demonstrating that the schools are:

- *"Up-to-date"*--introducing modern physical plant, new curricula not requiring changes in bureaucratic organization or staff rules, reduction of class size, use of teacher aides, team teaching.
- *"Efficient"*--adoption of electronic data processing, new budgeting and accounting systems, portable classrooms.
- *"Professional"*--adoption of curricula that are espoused by the educational leadership, hiring well-trained teachers, subsidizing in-service training and workshops, consulting with faculty of leading schools of education.
- *"Responsive"*--establishing formalized links to parents, using blue-ribbon advisory committees to submit reports on policy issues, establishing counseling and guidance functions, establishing special programs for handicapped, gifted, slow learners, etc., providing vocational programs

that respond to needs of local industry, offering a variety of adult extension courses.

Because the 18,000 school districts have a great deal of autonomy in deciding whether and how to innovate, we would expect adoption of innovations often to be a selective and idiosyncratic process varying according to administrators' tastes and their perceptions of school and community needs. The empirical evidence shows that small districts adopt fewer innovations than large ones [Lindeman et al., 1968], presumably because large districts are more able to keep informed of new methods, and face a wider variety of both external and system-generated pressures for change.

Those innovations that are widely adopted generally share common characteristics of substantial consensus in their favor among the elite and presenting no major bureaucratic or social problems. The most widely adopted instructional innovations, as of 1969, (adopted by half or more of the largest school districts) were: teacher aides, ability groupings, team teaching, elementary resource teachers, movable partitions, TV instruction, and non-graded sequencing. Curriculum innovations were widely introduced by large districts over the period 1965-69 in science, math, and reading [Lindeman et al., 1968]. The curriculum innovations were influenced by the NSF science and math curricula and by the sales efforts of new commercially marketed curricula (e.g., the EDL reading labs and SRA reading program).

These findings indicate that large-scale carefully planned R&D efforts are, in curriculum change, likely to be more effective in gaining adoption than more modest efforts (the current success of the SWRL prereading program is another case in point). It should also be noted that the NSF and SWRL prgorams were worked out in close collaboration with practitioners, which helped encourage adoption. Finally, these programs were widely publicized and praised by professional education groups, so that there were social pressures for adoption.

This last characteristic has significant general implications for acceptance of R&D products. Since the incentives for a school superintendent or principal to adopt or reject an innovation are so diffuse and so closely related to administrators' preferences, and their perceptions of internal and external constraints, R&D organizations

should clearly do their best to work closely with school administrators and those who influence them (county and state school officials). In part, this is a question of co-optation. But considering the characteristic remoteness from the client of educational R&D organizations, which have traditionally been university-centered, it also can serve as a form of reality therapy for the researcher. Of course, the opposite problem also can arise, as witness the rather poor record in innovation of school districts' internal research staffs, probably because they share too closely the bureaucracy's perspectives and priorities.

Adoption can also be catalyzed by pressure, subsidy, or other incentives from external jurisdictions or interest groups (e.g., federally mandated or subsidized innovations, such as Head Start or Follow Through; state mandating of kindergarten programs or programs for education of the handicapped; court decisions on desegregation or finance; influence of industry or interest groups on obtaining special programs, such as vocational education or driver education; minority community influences in achieving black or Chicano study programs, or varying degrees of decentralization).

School districts face a certain set of incentives which systematically affect their preferences for different kinds of innovations. State and federal R&D policy, to the extent that it aims at encouraging innovations that schools would normally be reluctant to adopt, should devote most of its funds to innovations that are uncongenial to the schools, with payments based on evidence that reforms actually are undertaken. If reformers seek to affect the ways that districts respond to internal and external institutional pressures, they will have to pay for it. Therefore, most federal and state subsidy, both for R&D and for innovation (both directly to schools and indirectly to R&D agencies) should go not for things that schools want to do, but rather for things that they would otherwise be reluctant to do.

Large-scale, well-planned support for innovative efforts aimed in part at rectifying the existing institutional biases, and a conscious policy of collaboration with school administrators (and

increasingly with leaders of teachers' organizations) are therefore two potential catalysts for adopting policies which rank high in reformers' preferences--the first aims at reducing existing barriers to innovation, while the second aims at achieving more innovation within the existing constraints.

A school district, whatever its critics may aver, is a going concern, one whose "survival" is under existing laws, threatened only to the extent that school boards can replace superintendents and that the public can replace school boards. Other employees are relatively invulnerable to these possibilities. Therefore, given the risk-avoiding mentality that we might normally expect in such a bureaucracy, real costs of innovations that affect internal or external relations of the system are likely to be magnified. At the same time, gains from such innovations are likely to be discounted, because institutions' operational focus is necessarily short-range which tends to stress immediate costs to the system, while the benefits of such changes are typically uncertain and remote. This creates a built-in conflict between practitioners and those researchers who seek innovation through methods that require reform of structures (which incidentally provides further argument in support of external subsidy for uncongenial innovations, such as vouchers, ungraded schools, or alternative schools). The research community typically complains that practitioners and politicians are unrealistic in their desires for immediate results. One method that researchers can use to appear responsive to this desire is to promise more performance from an innovation than the evidence warrants. This response, which is the more understandable if the R&D organization stands to benefit in prestige or money from the adoption, tends to heighten the district bureaucracy's skepticism about the merits of any R&D initiative which engenders significant organizational stress.

Because so many factors, not the least of which are the uncertainty of benefits and the certainty of resistance, tend to operate against any substantial voluntary change in the structure of the schools, desires for progress and reform therefore tend to be channeled into "safer" areas--those that involve spending more money on the existing

resource mix (more teachers, more administrators), or those that involve the kinds of changes in curriculum or administration that don't seem to threaten organized groups in or out of the bureaucracy. This is a collateral reason for the oft-noted prevalence of faddism in school reform. If structural changes are prohibitively costly in real (institutional) terms, then the attractiveness of less costly reforms, or even of chasing after will-of-the-wisp, is heightened.

III. FROM INNOVATION TO IMPLEMENTATION

Frequently change may be made still less costly in terms of the system's values by not implementing innovations along the lines proposed by their developers. Perhaps the most common complaint of the R&D community about adoptions is that the innovations are not actually implemented as prescribed, so that they never get a fair trial. This has clearly been the fate of most audiovisual developments, for example. Goodlad (1970) has pointed out that despite years of discussion and professional support leading to widespread adoption of such innovations as ungraded classes and team teaching, these innovations are rarely implemented. A school district will adopt ungraded classes, then implement it by teaching essentially a graded curriculum in the "ungraded" class.

These are several reasons for this failure to implement innovations effectively:

- R&D organizations frequently do not provide sufficient implementation guidance, in light of the variety of school situations where adoption is tried.
- Teachers, administrators, and students may not accept the obligation to change their behavior patterns in ways consistent with implementation.
- The schools may simply not know how to implement the innovation. As Smith and Keith (1971) have said, describing one such effort:

  > In spite of prodigious effort, common guidelines that guided did not exist; the language of school organization, teaching and goals for pupils remains metaphorical and literary but neither practical nor scientific (pp. 52-53).

- As a sort of corollary, if the language of the schools is "neither practical nor scientific" but metaphorical and literary, it may often be the case that school personnel will be more interested in the language of innovation than in the complexities of translating that language into innovative practice. This style of operations

> referred to as the "alternative of grandeur" [Smith and Keith] may well be entirely reasonable in the absence of evidence that conclusively supports the advantages of innovation. For the schools' purposes, verbal adoption of innovations may be entirely sufficient, and a preference for the verbiage of magnificent vistas has been noted by various observers.

The problems associated with implementing major innovations in public schools are too substantial to discuss in detail here. Suffice to say that even when motivations to implement are strong, innovations that are perceived as radical by the schools and their clients are exceedingly difficult to implement [Smith and Keith, 1971; Gross et al., 1971]. Frequently cited barriers in cases where there is widespread support for the innovation include unclear objectives or methods, and too little time allotted for planning change and informing people of what is planned and why. In instances where there is not widespread support, then such factors may come in to play as the need for stability, personal or institutional perceptions of threat or vulnerability, inertia, perceptions of client response, etc.

The Institutional Setting for Innovation

The principal funding sources that support innovations in the schools are federal and state governments, either directly through grants to school districts or indirectly through funding educational research and development. Cases in point are Head Start, Titles I and III of ESEA, the Emergency School Aid Program, Career Education funds, Miller-Unruh reading programs in California, urban aid in New York State, federal support of regional labs and R&D centers, and so on.

In practice the only real control that the Federal government has over district use of funds is the relatively unlikely option of withdrawing support. As the history of efforts to obtain Title I "comparability" indicates, use of this weapon is largely symbolic, as an adjunct to moral suasion [Wirt and Kirst, 1972].

Local school authorities know that once they receive a grant, they have much more freedom to use it in accord with their own priorities than the granter might wish.

School districts are characteristically hard-pressed, squeezed between voter reluctance to raise property taxes and employee wage demands. This squeeze tends to buttress whatever preference the school authorities have for system maintenance over innovation, and the actual flow of funds is likely to reflect those preferences [Coleman, 1972].

Some attributes of federal aid enhance these tendencies, and act to discourage incorporation of innovations into school systems.

- o There is a tendency to subsidize educational research and development without particular reference to the effects of the developments on various outcomes of schooling.
- o There is a tendency to ignore in setting policy the evidence of evaluation reports on innovative programs, allowing districts to introduce or perpetuate pet projects without regard to the alleged aims of innovation. (This does not imply that all evaluations are worth heeding, a fact which buttresses the policymaker's natural tendency to support whichever innovations his personal or bureaucratic preferences may dictate.)
- o There are too frequent changes in program priorities and too short a life for educational experiments. Many federally funded innovative programs are based on trials of one to three years, with two major consequent disadvantages: (1) not enough time is allowed to separate effects of the innovation from effects of the frictions arising from the effort to implement; (2) because the districts know that the programs cannot get a fair test in such a short time, they are unlikely to take much interest in the programs as exemplars.
- o A related difficulty is the tendency of federal and state agencies to view their contributions as seed money to be replaced by district funds if the program is a success. But school districts know that the typical cost of such programs ($100—$500 or more per student per year) is beyond their ability to finance for the student body at

large, while using district funds for applying the innovation to only a small number of students raises serious ethical questions for a regulated public utility.

- The school districts do not perceive the federal government as demonstrating clear or consistent policies toward innovation. There is no clear long-term benefit or penalty to a district if it adopts or fails to adopt one set of of innovations in preference to another. This tends to reduce the schools' respect for federal policies toward innovation, and to breed a certain cynicism as to the merits of serious efforts at innovation. Furthermore, since federal aid fails to systematically support hard alternatives and scamp easy ones, it in effect encourages a strategy of "grantsmanship," as witness a favorite saying among school administrators in response to federal agencies' description of new programs--"Yes, yes, just give us the money."

- The schools interpret these peculiarities of federal aid policies as meaning that federal aid is unreliable--"soft money" that will disappear as suddenly as it arrived. Therefore, school districts characteristically refuse to use federal money as the basis for any substantial long-run changes in ways of doing business.

- Furthermore, the federal government's support of innovation is relatively small scale compared to other programs such as impact aid and compensatory education. Therefore, funds for innovation, while helpful to a school district on the hunt for federal largesse, are a second order quest. This is rather ambiguous, though. If federal support of innovations were larger than it is, the institutional pressures to call almost anything by the name of innovation would be irresistible. Apparently, under the existing set of institutional relations, no federal investment in innovation is optimal--low levels of funding are insufficient to call forth substantial efforts of organizational reform, while

large-scale funding would clearly lead down the path already blazed by impact aid and Title I--compensating the schools for following the path of least resistance.

IV. IMPLICATIONS FOR EDUCATIONAL R&D

The schools are a unique social institution, molding the clients who, in ways reflecting reverence and resentment, also control it. From a certain point of view, the schools are primarily the agents of socialization, teaching successive generations how to accommodate to social and economic institutions, in the interests of the existing social order [Bowles and Gintis, 1972; Dreeben, 1968]. To accept such a view is, in effect, to deny the possibility of significant innovations in schooling, except as dictated by changing interests of ruling social and economic forces. But this view is far more optimistic about the merits and possibilities of innovation than some current empirically-based analyses [Averch et al., 1972; Jencks et al., 1972]. It posits the inevitability of effective innovation under the influences of changing social regimes, while Averch and Jencks seem to cast strong doubts about the ability of the schools to affect learning and attitudes in any systematic and significant way.

If we are to belive Bowles and Gintis, the only way to change the schools is to reform or revolutionize society, because the schools today are in effect performing the role that the majority influences in society want them to, and not the way that reformers want them to. If we are to draw reasonable inferences from Jencks and Averch, it makes more sense to invest in innovations in the non-school environment than in the schools themselves, because environmental factors account for far more of the variation in achievement tests, college attendance rates, lifetime earnings, etc., than school factors do or can.

If these researchers are correct in their conclusions, much of the money spent on educational innovation, however carefully allocated it may be, is wasted by social policy criteria. Whether or not they are right is debatable. After all society does not choose to systematically affect heredity; the outcomes of its attempts to influence the broad social environemnt are characteristically far from the mark; in practice this leaves the educational system as the principal vehicle for policy reform. The fact that the schools are not omnipotent in shaping educational outcomes is partly irrelevant. In current

circumstances, the market structure of the schools, the uncertainty about their goals and technology, and the particular set of institutional incentives that school districts face lead to systematic preference for certain kinds of innovations over others. This paper aims at suggesting ways for the schools to become more open to a variety of innovations, particular, those that the schools have not yet adopted. Measurement of the consequences can appropriately come later. As long as the schools can become more open to certain kinds of innovations, their prospects for performing better will be enhanced in the long run.

The discussion of Sections I and II above leads to an important conclusion for R&D policy. *If goals are in some sense undefinable, it is inappropriate to adopt the standard rationalist approach of first defining goals, then seeking means appropriate to achieve them efficiently. Instead, R&D strategy should be based at least in part on the converse approach.* If the present situation is unsatisfactory, then it is wiser to try out systematic innovations and assess their consequences than to continue to pursue uncertain goals with unclear technologies. (For a similar view, see March, 1972.) Adopting this strategy means finding ways to do three things:

- Adopt R&D policies that appeal more effectively to the existing set of bureaucratic incentives; and also policies that attempt to modify those incentives.
- Adopt policies that permit the public, acting through a variety of institutional means, to assess more accurately what the schools are doing and how well they are performing.
- Introduce changes in the market structure of the schools that will facilitate innovation.

This suggests five broad emphases for R&D policy in encouraging adoption of innovation: (1) large-scale experimentation; (2) collaboration between R&D agencies and educational leadership networks; (3) case studies of successful and unsuccessful innovation; (4) research that will improve the R&D community's understanding of the existing pattern of incentives in the schools; (5) trying out methods

of restructuring system incentives. Most of these approaches have been tried to greater or lesser degrees. The following discussion attempts to link them to the discussion of incentives.

1. Large-Scale Experimentation

Most educational innovations are tried out on a small scale in one school or one district. They tend, whether considered successful or not, to disappear from view. The National Center for Educational Communications, through ERIC and other devices, tries to disseminate information about innovations, but the results to date in terms of adoptions so generated have not been impressive. Large-scale experiments, either planned or emerging as offshoots of other programs, include Head Start, Follow Through, Titles I, III, VII, and VIII of ESEA, the NIE experimental schools program, Higher Horizons, More Effective Schools, Sesame Street, The Electric Company, NIE career education models, and performance contracting. There has been wide variation in the perceived success of these efforts, both between and within programs [Averch et al., 1972]. But the experiments have in general not been designed or evaluated in ways that would allow anyone to assess the reasons for their success and failure in the real-life setting of the schools. This kind of assessment is difficult, both because education is a complex phenomenon and because innovations that impinge on bureaucratic values make headway slowly. There is not only the obvious point--experimenting with a major educational innovation for one year or a few years is unlikely to reveal much about its merits even in its own terms--but also a less obvious and far more general one: any substantial intervention in an existing social system is very likely to have important unintended effects, reflecting the system's effort to respond and accommodate to the new stimulus. For example, one of the unintended effects of New Deal agricultural price support programs was to subsidize large commercial farmers heavily without significantly halting the decline of family farming. This effect reflected both changes in agricultural technology and the strong influence of commercial farmers in the structure of agricultural politics, which in turn was able to exert its influence on the broader

structure of national politics. By the time these unintended effects became apparent, it was too late to rectify them--had experimentation been possible, the eventual outcome might have been avoided through different policies.

In education, suppose that an unintended effect of ESEA Title III were that Title III schools or districts behaved no differently than others three years after federal support expired. This result would provide strong evidence that system behavior is extremely stable with respect to perturbations introduced by temporary funding in support of innovation. This might in turn argue either for longer term support of effective innovations or for abandonment of the present Title III program.

As noted above, some experimentation has already been undertaken and offers a substantial opportunity for seeing how R&D initiatives have actually affected the schools as institutions, offering thereby guidelines for future R&D policy. But two kinds of new, large-scale natural or planned experiments are also needed. The first kind of experiment involves finding out more about the effects of new methods on educational outcomes, given the current institutional structure. Examples include: (1) long-term analysis of cohorts that, through chance or design, receive different educational treatments (the Progressive Education Association's Eight-Year Study, 1934-1941, is the only extant example of such an approach); (2) highly capital-intensive forms of education; (3) curricula that make sharp changes in existing pupil-teacher, pupil-method and teacher-method interactions.

The second kind of experiment is more deliberately aimed at modifying the current structure of institutional or market incentives. Examples, discussed in more detail below, include: (1) educational vouchers; (2) youth endowment plans; (3) alternative schools within a district; (4) decentralized governance; (5) merit pay; (6) compensating R&D agencies and school personnel for both the development and the implementation of innovations.

But all such research and experimentation should focus not simply on the effectiveness of meeting stated goals, but also on the systemwide

effects of the experiment, in particular the institutional response of the schools to the new stimulus. This approach will help create a corpus of knowledge about the response mechanisms of schools to innovation in different fields, as advanced in different ways--in particular it will show which innovations, if any, are most effective under current incentives, and which ones effectively modify those incentives.

Large-scale, appropriately publicized experiments are important to demonstrate to schools and the public that a particular innovation can succeed in a variety of settings. They are also important in some cases to provide convincing demonstrations of failure. Educational research and development organizations espouse a wide variety of innovations. Some large-scale experiments, even if carefully chosen, are likely, after a resonable test, to fail of their objectives. It is appropriate that knowledge of unpromising innovations be as widely disseminated as promising ones. For example, if the one-year OEO performance contracting demonstration had been continued for long enough to demonstrate that contractors could, given a reasonable time span, neither improve cognitive skills nor encourage schools to adopt new methods faster or more cheaply than otherwise, the conclusion would have been of value for policymaking and well worth disseminating widely.

2. Collaboration with Educational Leadership

There is strong evidence that school district administrators rely primarily for research and development information on personal contact with researchers and with other administrators, through informal channels, workshops, and professional meetings [Havelock et al., 1969; Carlson, 1965a; Greenwood and Weiler, 1972]. It also seems clear that most educational research and development has been oriented to academic peer approval rather than to adopting innovations in the schools [Havelock et al., 1969; Glaser and Taylor, 1969]. It has been said, for example:

> Many academic scientists value the prestige that their tributions to basic research and theory give them in the

eyes of their peers more than whatever rewards might be obtained from clients who would find their work useful .... Much of the applied work in disciplinary departments is done by those who for one reason or another do not compete for the highest prizes of their disciplines [National Academy of Sciences, 1969, p. 93].

Policymakers who come to social scientists for advice often go away empty-handed. A local school superintendent in California addressed exactly this charge to the staff of one research and development center. 'They're always chasing theoretical rainbows, and frankly I doubt that there's a pot of educational gold at the end [Baldridge and Johnson, 1972, p. 33].'

It is clear that these misunderstandings (between researchers and practitioners) develop because there has not been a meeting of the minds between the research and the organization. The atmosphere, during early stages, of cordiality, implicit mutual assurances, and reciprocally unrealistic expectations compounds an already precarious balance .... The 'loser' is not just the agency or a disappointed researcher; it is the field, the clients, and all participants as well as future research endeavors [Glaser and Taylor, 1969, p. 91].

We have here a vicious circle: (a) many educators do not conceive of the scientific method and research as being of primary significance to their work; (b) this state of mind creates an atmosphere in which low priority is given to the conduct or utilization of research; (c) because of low evaluation or neglect, research continues to be a dubious enterprise; and (d) because condition (c) exists, condition (a) is perpetuated [Pellegrin, in Carlson, 1965b, pp. 71-72].

The present situation tends to combine several disadvantages:

- Researchers are interested in disciplinary prestige more than in problem-solving in the schools.
- Even when, as in the case of regional labs, there is considerable incentive to produce R&D results that can be applied in the schools, the gulf between innovation and implementation remains all too often unbridged.
- Researchers disseminate results through journal articles and reports; practitioners learn through briefings, meetings, and informal discussion.

- Research and development agencies follow an R&D change model that views the schools as passive adopters of new products, but the schools themselves decide to adopt and implement innovations in light of a host of organizational considerations which are not considered in the R&D model of change.
- Researchers and practitioners often don't talk the same language because their operating styles, perceptions of issues, and professional priorities are so different.

The policy implications appear evident, although the remedy is likely to be slow.

First, educational R&D organizations should be interdisciplinary and problem-oriented rather than disciplinary and methodology-oriented. This is not a criticism of either basic research or focusing on discipline or methodology. But in the context of this paper--how to increase the adoption of R&D products in the schools--they are evidently of little proximate value.

Second, R&D organizations should work more closely with principals, district administrators, and teacher representatives during the development period. Several such organizations regularly employ school administrators, on leave from their districts, in R&D planning. This practice should be extended. There is a delicate balance, of course, between systematically improving researchers' and school staffs' mutual understanding; and allowing research and development to be dominated by the institutional perceptions of the schools.

Third, R&D organizations should conduct regular seminars, workshops, and institutes for school district and state education agency staff, designed to communicate both R&D results and schoolmen's perceptions of appropriate priorities, implementation problems, and technical assistance requirements.

Fourth, it is important for R&D agencies to understand the nature of regional and national influence networks, and to identify

potential innovators. In the public schools, as elsewhere, there are organizations and individuals who are more disposed to innovate, and who feel less threatened than others by the prospects of change. For example, USOE in its experimental schools program and OEO in its voucher and performance contracting demonstrations have in effect identified a few such districts. R&D organizations can work with such innovators to demonstrate the new methods and find out how they work in practice, meanwhile working with broader leadership networks to disseminate the findings.

Fifth, and most important in the transition from innovation to implementation, is the need for R&D personnel to work closely with school staff during the implementation period. Otherwise, it is clear from the evidence [Goodlad, 1970; Gross et al., 1971] that the R&D task is cut off before its fulfillment. The view taken here is that incentives to adopt and incentives to implement are largely different from each other. Innovation and implementation work through different agents in the institutional setting. The federal or state agencies propose; school superintendents or principals dispose; the teachers and students transform.

Therefore, the R&D job does not end at the school district line or the schoolhouse door, and close collaboration with the schools is probably a necessary condition of implementing any innovations that depart from the established pattern of innovations that, as we have seen, the schools customarily accept. This approach means that R&D agencies will have to assure the training and recruitment of people who work well with both researchers and people in the schools. This form of technical assistance for implementing innovations will be expensive.

For the major innovations that proponents of school reform are seeking, it may often be a matter of years, not months, to build up the kind of orientations and mutual understanding that will be required and through a process of successive approximation, to create new institutional structures and values. It will in effect require R&D institutions to turn much more to a clinical model of change (one

which adapts general findings or processes to the specific circumstances of the client) and away from the engineering model, which offers a standardized product to the clients at large [Weiler, 1972; House, Kerins, and Steele, 1972].

3. Case Studies of Innovation

There is a sizable literature on educational innovation (see bibliography), including some interesting analyses of the success and failure of particular innovations [Smith and Keith, 1971; Gross et al., 1971; Carlson, 1965a]. However, the literature, with a few exceptions, does not describe the implementation process. As Goodlad (1970) and Gross et al. have pointed out, it is impossible to judge the merits of an innovation unless we have substantial information about how, and even *if*, it was implemented. If some innovations are, as Goodlad claims, implemented in name only, then the innovation remains untested. At the same time, such evidence clearly indicates a failure in the R&D process. Innovations that consistently remain unimplemented can hardly be regarded as arguments in favor of perpetuating existing R&D styles. Either the innovations are inappropriate, or the implementation arrangements, or both.

The discussion of the previous sections indicates a number of reasons why innovations might not be adopted or implemented. These arguments, based on unsystematic observation supplemented by a few case studies, need to be rejected or confirmed by more systematic case studies. Such studies can point the way to more effective strategies for development and implementation. Some R&D agencies have shown an ability to work with schools to implement innovations, while others have not; yet there is surprisingly little documentation of the record.

4. Analysis of Incentive Patterns

What are the institutional incentives that motivate school districts, administrators, school boards, teachers, state and federal educational agencies? Are the respective sets of incentives consistent with each other? If not, how are inconsistencies typically resolved?

In general, we would expect school districts' values to dominate in the resolution of interjurisdictional differences, since they are closer to operations than other jurisdictions, and exercise de facto control over funds, no matter how they are nominally earmarked.

But the relationships are complex. The Federal government has clearly forced state school agencies and local districts to pay more attention to disadvantaged students and to innovation than they would have otherwise. Changes in state education codes and in financial support regulations systematically affect local school districts' incentives and responses. The emergence of strong teacher unions has reduced school boards' and administrators' freedom of action, as has the emergence of a number of vocal and conflicting community interest groups.

In general, groups and institutions involved in the multi-bureaucratic structure of educational governance do not appear to gauge each other's motivations and responses well. Evidence for this lies in: (1) the frequently voiced disappointment of federal and state agencies in local districts' failure to do a good job in carrying out mandated programs; (2) local community groups' perception of school authorities as unresponsive; (3) district administrators' frequent impatience or contempt for state and federal agencies' inability to understand the local perspective; (4) R&D agencies' frequent ignorance of or disrespect for district administration; (5) teacher groups' increasing militance, reflecting impatience with the perspective of school boards and administrators; (6) the public's increasing unwillingness to vote more funds for schooling.

There is no accepted theory of interbureaucratic organizational behavior. Organization theory has concerned itself mostly with the internal structure and incentives of individual or representative bureaucracies and first steps toward a more realistic description of how bureaucracies interact are barely under way [see Levine, 1972]. Even this has not been worked out in enough detail at the school district or state and federal education agency level.

There have been formal treatments of interbureaucratic financial behavior [Barro, 1972] and descriptive treatments of individual

bureaucratic levels--federal, state, local, R&D agencies (see bibliography). But it seems safe to say that most external efforts to promote innovation in the schools have foundered in part through their ignorance of the tunes to which school districts must dance. Federal programs, for example, often seem to assume that because schools want to prevent high school dropouts, therefore Federal funding of dropout prevention programs will result in a coincidence of Federal and local interest. The reality is far more complex. School districts have a number of priorities, and dropout prevention ranks much higher in the verbal agenda than in the hidden one. For good reasons, the schools feel that some people should be encouraged to drop out and others discouraged. But dominating those perceptions is the need to prevent any important client groups from creating crises--to keep them at least relatively satisfied. Therefore, dropout prevention funds--like compensatory education funds, driver education funds, or any other largesse--will be spent as much as possible to keep parents, teachers, students, school boards, and "external" bureaucracies in some kind of equilibrium. The nominal purposes of the funds are regarded at the district level as constraints on the objective function, and one measure of an administrator's success is his ability to make the constraints non-operative, to allocate external funds so that they do double duty.

Therefore, if externally-encouraged innovative efforts are to avoid a great deal of waste motion, they must be based on a far more detailed appraisal of the reality of the schools as institutions than is now the case. For this reason, studies of the operative behavior of school districts in their relation to their own clients and to the state and federal bureaucracies they must deal with should be of high priority in R&D funding.

5. Restructuring System Incentives

A theme of this paper is that the schools, as a peculiar form of regulated public utility, have a different set of incentives to innovate than do competitive firms. It is undesirable to take the private market model as a general exemplar for school district

behavior (most people would be reluctant to allow only those who can afford schooling to obtain it), but it seems well worthwhile to experiment with changing the incentive system of the schools in a variety of ways. There is no guarantee that new system incentives will result in performance that satisfies society more than the present systems. But, given the great expense of schooling and widespread dissatisfaction with current performance, the social costs of experimental restructuring of incentives cannot be very great.

Experimentation with restructuring incentives should take four forms:

A. Changes in Market Structure

These experiments would cover:

- A range of voucher alternatives from the public school open enrollment version currently under way in Alum Rock to those that would include establishing new schools and allowing participation of existing private and public schools.
- Youth endowment plans under which each young person would have a lifetime entitlement of money to be spent on supplemental schooling or other beneficial use at the recipient's discretion--for example, supplemental educational or extra-curricular experiences during the elementary and secondary school years; college expenses, cost of private vocational schools as a substitute for high school; costs of going into business, etc. One version of this proposal, the educational bank, has been described by Killingsworth (1967).
- Permitting open enrollment across district lines among the public schools of a metropolitan area, with public funds following the student.

B. Changes in Locus of Control

Both greater centralization of control and greater decentralization of control are likely to lead to their own sets of systematic biases in incentives to adopt innovations and incentives to implement them. The object of experimentation and analysis should be to discern the nature of these effects. Obvious candidates for initial analysis are responses to innovation in New York City schools, as an example of decentralization to the neighborhood level; private schools, free schools, and alternative schools, as an example of decentralization to the school level; and jurisdictions such as the French and Swedish schools or Los Angeles and Chicago districts, as examples of centralized decisionmaking.

It should also be possible to mount new experiments, with assurances of long-term funding, such as paying school districts to decentralize decisionmaking to principals or to community boards or to teacher-student governance; or subsidizing a state government to centralize and implement innovative policies.

C. Changes in Individual Incentives

The schools have long resisted any moves to "deprofessionalize" the system, whether by paying people on the basis of performance or by allowing the schools to hire anyone they want to as teachers or administrators. Certification and the unified salary schedule are the shibboleths of professional educators. Some of the reasons are obvious: (1) certification offers the advantages of a sort of tariff barrier; (2) it also offers status--certification enhances the esteem of lawyers, doctors of philosophy or medicine, licensed plumbers and morticians--why should schoolmen not garner the same psychic benefits?

Some of the reasons are less obvious. Many teachers and administrators believe that both ends and means of their work are uncertain. Others believe that ends and means are certain, but unrevealed to those in position of authority. In either case, where does merit lie, and who should decide it? If salary differences are desirable as incentives and as recognition of increased social responsibilities

associated with aging, then why not condition salary rewards on objective measurable stigmata--years of experience in teaching and in learning--rather than on unverifiable judgments about individual merit? Stated differently, productivity criteria are one thing where some form of market appraisal or a generally approved surrogate exists (batting averages, journal articles, or shorthand speed)--the criteria may be resisted, but they are hard to gainsay entirely. Matters are quite different when each observer is free to assert his own criteria, or when centrally imposed criteria are widely regarded as arbitrary.

This leads to some conclusions for experimentation. Dispensing with certification requirements for recruitment and promotion should be tried out, under subsidy, in school districts. Merit pay experiments should preferably be implemented in association with reasonable evidence that certain kinds of teacher characteristics or behavior lead to better student outcomes than others. There has been a good deal of research on teaching, but rather little of it has been associated with student outcomes [Averch et al., 1972; Hanushek, 1970]. Beyond that, research is fragmentary and not conclusive.

In light of uncertainties about what merits should be compensated, it seems advisable to study through natural experiments (longitudinal studies of teachers and students) and planned experiments (assigning teachers with certain characteristics randomly to students) whether the objective correlates of merit can be determined. For both teachers and administrators, one dimension of merit to be compensated might be the successful implementation of specified innovations. Compensation could take the form of salary, or perhaps more acceptably, some agreed level of "free" funding for innovating schools or districts.

D. Clearer Standards for Accountability and Better Information Systems

Accountability and information systems for the schools have been carefully discussed [Barro, 1970; Coleman and Karweit, 1972; Dyer, 1970], but they remain in public discussion largely catchwords, two more footnotes for the historian of educational rhetoric.

Nonetheless, such catchwords, in this case as in others, represent a recognition of issues which, though dimly perceived, are fundamental to social choice. Why do such vague concepts as "accountability" and "information systems" represent something fundamental, and what can planned experiments do about them? The phrases are probably important because they recognize implicitly a search for consensus; and one task of experimentation can be to give that search some content. If the objectives of schooling are multiple and unclear, if there are no market tests of efficiency, if there are generally only weak performance criteria for R&D product adoption, and if, at the same time, the public is dissatisfied with its youth, and therefore with its schools, where should reforms begin? Why should the public endorse or the schools adopt, at considerable travail, new methods that will create political and institutional problems, when the resulting prospects for school improvement are so uncertain? In some sense, then, the call for accountability and for information is more than a blending of old nostrums--searching for scapegoats--and new ones--appealing to the balm of technology. It is a recognition of a disturbing situation. Unless the things the schools do can be tested in light of well-established and widely disseminated criteria, there is not much rational basis for preferring one policy over another. Even the obvious ones, like spending less money to put the same number of children through school at some average achievement levels, are unreliable. Saving money may be less important not only to the schools but also to the public than continuing to do things as before.

This paper contends that the search for accountability cannot be based on agreed objectives starting from first principles, because

there will never be agreement about the nature or priority of social objectives. Who is to decide ex ante what is the right combination of basic knowledge, vocational skills, child care, socialization, or motor development for the schools to produce? Instead, as suggested above, the present uncertainties should lead R&D planners to a strategy in which the process of experimentation is consciously used as the mechanism that helps define social values.

Market-oriented innovations, such as vouchers or the educational bank, are more or less consciously aimed in that direction. Many of the experiments suggested in this section are directed toward the same general goal, within the present public utility framework, primarily by trying to compensate for the innovative biases created by the local monopoly status; and by trying to assure that educational R&D is carried through to the implementation stage--the analogue in a competitive market would be production engineering--a function which does not automatically emerge from the dynamics of the educational marketplace, because there is no necessary payoff for implementing planned change in ways that mirror the developers' intent.

Once planned experimentation and analysis of existing natural experiments offer some idea of what different people in and out of the schools value, and what costs in money, in bureaucratic upheaval, and in alternative outcomes forsaken they are prepared to pay, we are at the threshold of genuine accountability, systems that could allow assessment of the progress of a teacher, an administrator, a school district toward specified goals. But it is only a threshold in the absence of widely disseminated information about the outcomes of schooling--in achievement, attitudes, career paths, in social integration, and perhaps ultimately in people's conceptions of education. Without comprehensive information flow to policymakers and the public, any new era of experimentation is likely to end up where past experiments have, in the research libraries. The widespread dissemination of information will give the public, as individuals and in various institutional roles, opportunities to campaign or be inert, on the basis of some more realistic appraisal of cause and effect than has yet been possible. If this is no guarantee of more effective

schooling, it at least comes closer to an uncertain ideal--public participation in an informal decisionmaking process. The devising of such comprehensive information systems in support of accountability has been discussed elsewhere [Coleman and Karweit, 1972; Farquhar and Boehm, 1971].

In conclusion, it should be pointed out that accountability in the sense of standards of accomplishment for school staff would require constant revisions. This would not reflect an effort by society to speed up the assembly line once initial norms were achieved; but society's tastes change and therefore the ordering of its preferences as expressed through experimental results would perennially impose new standards on the schools.

But in a diverse society, perennial change in standards implies that at any one time there will be a variety of standards--including, as pointed out above, the coexistence of incompatible standards. In private markets when consumers want different things, the response is to provide a variety of alternatives, allowing each consumer to choose the particular kind of housing, insurance, or toothbrush that comes closest to meeting his preferences in light of his means. Given a somewhat analogous set of competing demands in the public utility market of the schools, diversity will have to take place primarily in a public marketplace, which, as we have seen, behaves differently from a private one. In light of the standards implicit in this paper, a major focus of R&D policy should be--through experimentation and through incentives that encourage new patterns of institutional behavior--to encourage a long-overdue diversity of approaches to schooling. Even with more sophisticated approaches to R&D management and to the realities of implementation, the task will be long, costly, difficult. In the current state of knowledge, this process must be justified primarily on the grounds that an educational system which develops effective mechanisms for innovation is more likely to respond to changing social needs than one which is primarily centered on preserving the existing institutional order. This viewpoint implies that diversity in organizational response itself should be a prime target of policy.

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